



Certificate of Conformity for Grid Support Interactive Inverter

UL STANDARD No. 1741-SECOND EDITION SUPPLEMENT SA

Reference Certificate: 70194014

Master Contract: 159409

Project: 70212688

Date Issued 2019-03-04

Issued to: Schneider Electric Solar Inc.
3700 Gilmore Way
Burnaby, British Columbia V5G 4M1
CANADA
Attention: Ralph McDiarmid

The products listed below have been found to comply with the applicable requirements of UL 1741-Second Edition (Rev. FEBRUARY 15, 2018) Supplement SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS.

Issued by: *Thian (Peter) Lim*
Thian (Peter) Lim

PRODUCTS

CLASS 5311 09 - POWER SUPPLIES - Distributed Generation Power Systems Equipment

CLASS 5311 89 - POWER SUPPLIES - Distributed Generation - Power Systems Equipment - Certified to U.S. Standards

Special Purpose Grid Support Utility Interactive Inverter/Charger/ Stand-alone, Model XW Pro 6848 NA with Conduit Box supplied, is permanently connected, fixed equipment.

For details related to rating, reference should be made to the CSA Certification Record, the Descriptive Report or Annex A Ratings for Certificate of Conformance.



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Supplement to Certificate of Conformity for Grid Support Interactive Inverter

APPLICABLE REQUIREMENTS

*UL Std No. 1741-Second Edition - Inverters, Converters, Controllers and Interconnection System Equipment For Use With Distributed Energy Sources. (Rev. Feb 15, 2018)

***Note:** Conformity to UL 1741-Second Edition (Rev. FEBRUARY 15, 2018) includes compliance with applicable requirements of UL1741 Supplement SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS pertaining to California Rule 21(SRDs), IEEE 1547, IEEE 1547a and IEEE 1547.1.

Software Versions:

Models: XW Pro 6848 NA

Device	Device Manufacturer/Type	Software Version (release date)	Device Checksum
MCU 32 bit, single-core w/bootloader, U27 on control PCB	Texas Instruments/TMS320F28377	V1.01 (BN0233) (2019- Feb -11)	16f4a17719c2682e748723c4e b1103a0

Tests were performed on Model XW Pro 6848 NA, at Schneider Electric Solar Inc. 3700 Gilmore Way Burnaby, British Columbia, CANADA under the CSA WMTC program, witnessed by CSA certifier.

Inverter Model XW Pro 6848 was evaluated to the requirements of UL 1741-2nd Edition (Including SA requirements and Rule 21). The new model is identical to the previously certified model XW+6848-NA). The following tests were performed under the requirements of UL 1741-2nd Edition with SUPPLEMENT SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS with acceptable results. (Refer to original CSA report 1873035 under project 70142893)

General Overview of UL 1741 Evaluations: UL 1741 2 nd With SUPPLEMENT SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS		
UL1741 – SA	Applicable Requirement/Topic	Comment
UL1741 - SA8	Anti-islanding Protection - Unintentional Islanding with Grid Support Functions Enabled	PASS
UL1741 - SA9	L/HVRT Low and High Voltage Ride-Through	PASS
UL1741 - SA10	L/HFRT Low and High Frequency Ride-Through	PASS
UL1741 - SA11	RR – Normal Ramp Rate and SS – Soft-Start Ramp Rate	PASS
UL1741 - SA12	SPF – Specified Power Factor	PASS
	Volt/VAr Mode (Q(V)	PASS
UL1741 - SA14	Frequency-Watt (FW)	PASS
UL1741 - SA15	Volt-Watt (VW) – Optional	PASS



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UL 1741 2 nd version makes reference to IEEE 1547 and IEEE 1547.1; These Reference Documents (RD) are integral to UL 1741.		
UL1741 2 nd Edition	Applicable Requirement/Topic	Comment
Sec. 43, Cl. 6.3	Temperature Test	PASS
Sec. 44, Cl. 6.5	Dielectric Strength Test	PASS
Sec. 45, Cl. 15.3 (RD Cl. 5.1)	Output Characteristics Test (Min, Nom, Max)	PASS
	Output Ratings, Sec. 45.2, Cl.15.3.2	
	DC Input Range, Sec. 45.3	
	Harmonic Distortion, Sec. 45.4, Cl. 15.3.3 (25°C) (Stand Alone-V, Grid Tie I)	
	DC Injection, Sec. 45.5 (25°C)	
Sec. 46, Cl. 15.3	Utility Compatibility Test	PASS
(RD Cl. 5.1, 5.2, 5.3)	Utility Voltage and Frequency Variation Test, Sec. 46.2, Cl. 15.3.4 (25°C)	PASS
(RD Cl. 5.10)	Reconnection to Area EPS	PASS
(RD Cl. 5.9)	Open Phase Test	PASS
(RD Cl. 5.7)	Anti-Islanding Test, Sec. 46.3, Cl. 15.3.5 (25°C)	PASS
		PASS
(RD Cl. 5.10)	Harmonic Distortion	PASS
(RD Cl. 5.11)	Anti-Islanding Test, Sec. 46.3, Cl. 15.3.5 (25°C)	PASS
Protection from electromagnetic interference (EMI) (RD Cl. 5.5.1)	Radiated Immunity	PASS
Surge withstand performance (RD Cl. 5.5.2)	Surge Withstand on External signal and control Circuits.	PASS
Surge Test Requirements (RD Cl. 5.5.2)	Ring Wave (pos & neg)	PASS
Surge Test Requirements (RD Cl. 5.5.2)	Combination Wave (pos & neg)	PASS
Sec. 45, Cl. 15.3 (RD Cl. 5.1.2.2)	Storage Test	PASS



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Additional tests were repeated in lieu of the above firmware and transformer changes that addressed the UL1741 SA requirements: The following tests were performed with new firmware under the requirements of UL 1741-2nd Edition with SUPPLEMENT SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS with acceptable results: The following tests were necessary and all other tests done previously can be found in Report 1873035.

General Overview of UL 1741 Evaluations: UL 1741 2 nd With SUPPLEMENT SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS		
UL1741 – SA	Applicable Requirement/Topic	Comment
UL1741 – SA8	Anti-islanding Protection	Spot check Only: Conducted on Inverter Model XW Pro 6848 NA
UL1741 - SA9	L/HVRT Low and High Voltage Ride-Through	Spot check Only: Conducted on Inverter Model XW Pro 6848 NA
UL1741 - SA10	L/HFRT Low and High Frequency Ride-Through	Spot check Only: Conducted on Inverter Model XW Pro 6848 NA
UL1741 - SA11	Normal Ramp Rate and SS – Soft-Start Ramp Rate	Spot check Only: Conducted on Inverter Model XW Pro 6848 NA
UL1741 - SA12	SPF – Specified Power Factor	Spot check Only: Conducted on Inverter Model XW Pro 6848 NA
UL1741 - SA13	Volt/VAr Mode (Q(V))	Spot check Only: Conducted on Inverter Model XW Pro 6848 NA
UL1741 - SA14	Frequency-Watt (FW)	Conducted on Inverter Model XW Pro 6848 NA. Full Test
UL1741 - SA15	Volt-Watt (VW) Optional	Conducted on Inverter Model XW Pro 6848 NA. Full Test

General Overview of UL 1741 and CSA 107.1 -16 Evaluations: UL 1741 2 nd edition makes reference to IEEE 1547 and IEEE 1547.1; these Reference Documents (RD) are integral to UL 1741.		
UL1741, CSA 107.1-01 (RD - IEEE 1547.1)	Applicable Requirement/Topic	Comment
(RD Cl. 5.1, 5.2, 5.3)	Utility Voltage and Frequency Variation Test, Sec. 46.2, Cl. 15.3.4 (25°C)	Spot check only. Conducted on Inverter Model XW Pro 6848 NA
(RD Cl. 5.7)	Anti-Islanding Test, Sec. 46.3, Cl. 15.3.5 (25°C)	Spot check only. Conducted on Inverter Model XW Pro 6848. Conducted with a Q factor of 1.
(RD Cl. 5.9)	Opened Phase	Spot check only. Conducted on Inverter Model XW Pro 6848)



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Product Certification History

Project	Date	Description
70212688	2019-03-04	Update Report 70194014 to include Volt-Watt and revised Freq-Watt grid tie requirements as per UL1741 Supplement SA.
70215682	2019-02-12	Update Reports associated with Project 70194014 to: 1) Change Master File Address from Livermore, California, USA to Schneider Electric Solar Inc., 3700 Gilmore Way, Burnaby, BC, V5G 4M1. Canada. 2) Update Model Name to XW Pro 6848 NA
70194014	2018-11-30	New report for new model XW Pro 6848 NA. The new model is identical to the previously certified model XW-6848-NA (refer to report 1873035 under project 70142893) except for the microprocessor in the control board and the main transformer have been changed. (C/US).